

OKLAHOMA COTTON IN WARTIME

A Comparison of Oklahoma Production and Military Requirements

By
K. C. DAVIS
and
W. A. WILLIAMS

Trash mixed in cotton during picking makes yarn like this. Its value for wartime purposes is low. Harvesting is only one of several quality factors.



OKLAHOMA AGRICULTURAL EXPERIMENT STATION
Oklahoma A. and M. College, Stillwater

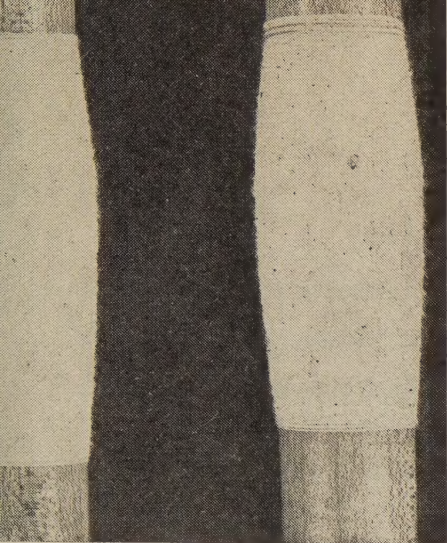
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Experiment Station
Circular No. C-105

July - 1942



72 Yarn made from cotton picked clean and kept clean en route to the gin. This makes the kind of cloth Uncle Sam needs for his Army and Navy.



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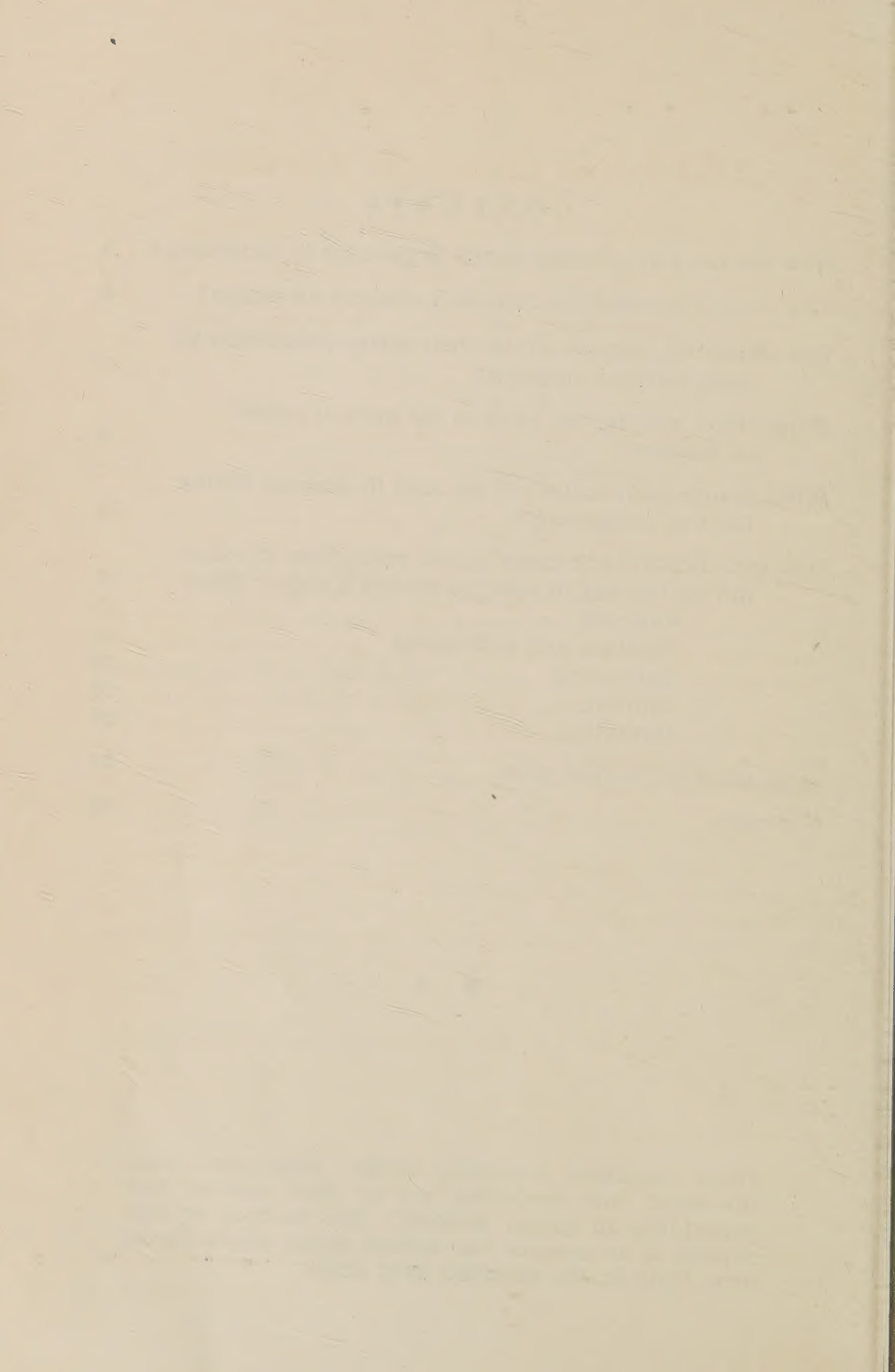
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These questions regarding cotton production, consumption, and marketing are of vital interest and importance to cotton growers. The purpose of this circular is to analyze the factors which might throw some light on the situation as it exists.



Oklahoma Cotton in Wartime

A Comparison of Oklahoma Production and Military Requirements

By K. C. DAVIS and W. A. WILLIAMS*

HOW HAS THE WAR AFFECTED COTTON PRODUCTION IN OKLAHOMA?

For the past twenty years, according to reliable and authentic estimates, from 75 to 90 percent of Oklahoma cotton has moved into export channels.¹ Today, export of cotton from the United States has been reduced to about one-seventh of the average from 1920 to 1940. This reduction of exports is one of the major problems confronting the cotton industry of the nation; and the effect on Oklahoma farm income from cotton is one of the major agricultural problems of the State.

Prior to World War II, the United States exported on the average (1930-1940) 6,324,749 bales. There was a gradual decrease in the amount exported during this period from almost 9 million bales in 1932 to only a little more than 3 million in 1939. In the decade preceding this period, the United States exported on the average 7,182,000 bales.

As late as 1940 the United States exported 6,192,000 bales. Some of this went to Japan; but, fortunately, Great Britain took advantage of a lull in the battle of the Atlantic to replenish her inventory. To what extent her inventories were re-established will not be made public until after the war; but it is significant that cotton exports in 1941 were about one million bales.

Before the United States entered the war and the lack of shipping space became so acute, annual exports were expected to approximate one million bales provided Canadian consumption could be materially increased over the 1939 level.²

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¹ Alston Clapp Sr., "Marketing Texas and Oklahoma Cotton." *Acco Press*, July 1937. (Published by Anderson, Clayton, and Co., Houston, Texas.)

² Data are not available on exports or imports since 1941, as the Census Bureau has been asked to discontinue this information in the interest of national defense.

However, Canadian consumption cannot begin to offset the loss in other markets, as the number of spindles in place in Canada in 1939 was about one-twentieth of those in place in the United States. Under the circumstances this is an unfortunate situation, and it is to be hoped that the number has been increased considerably since that date. But wishful thinking will not change or create a market for Oklahoma cotton. Cotton can no longer be produced to be sold in the world markets. It must be consumed in domestic markets or be added to the huge surplus stock pile.

To understand more clearly the problem confronting the cotton producers in Oklahoma, an analysis of the domestic market should be helpful. Also of significance is the influence of the all-out war economy on domestic consumption and especially on the relationship of demand to supply.

HAS THE WAR CHANGED THE MARKET OR DEMAND FOR COTTON?

The domestic market has always been a discriminating market as it has had access to one of the world's greatest cotton producing regions and has always had first choice of the quality and quantity it wanted or could use most efficiently. Therefore, only the better qualities were consumed domestically. Some of our foreign customers have been as exacting as our domestic mills, but the foreign buyers have practically disappeared as far as their influence is felt in the market. This has left the entire crop or a very large percentage of the crop from which domestic mills could select the quality to be consumed in the United States. This condition has been further intensified by the exacting demands of the Army and Navy which made it necessary for the textile industry to use only cotton of a superior quality. As a result, there is a shortage of most of the better quality cottons.

This problem became further intensified in 1941 when the grades fell below average, especially in the western states. Staple length has improved considerably in the western states during the past few years, but the grades have decreased in quality. Although staple length met domestic mill requirements in 1941, the industry has not been able to use a large part of the cotton because of the low grades. It is possible to use this low grade cotton, but it is not economically feasible because the rate of mill consumption would be materially decreased.

In 1939, the ratio of production to consumption of cotton shorter than 7/8 inch in staple was 7.7 to 1 (Table I.). In other words, the United States produced enough short staple cotton in 1939 to last our domestic mills almost eight years provided consumption had remained at the same level. Fortunately, producers realized that they were being penalized very heavily for this quality; and in 1941 they decreased production of short staple to 2.7 times the rate of consumption. Consumption also increased 50 percent over the previous season. Nevertheless, during the three years 1939, 1940, and 1941 a relatively large surplus of the short staple was added to the ever-growing stock pile of cotton. In fact, this has been one of the primary factors responsible for the huge surplus of ten million bales. The Department of Agriculture reports that six million of the ten million bales of surplus cotton is under one inch in length. If low grades (grades below Low Middling White) were added to the millions of bales of short staple cotton, the merchantable carryover would be very small. The short staple and low quality make the cotton unmerchantable in the sense that better quality cotton must be used if present demands on our textile industry are met.

CAN OKLAHOMA FARMERS ADJUST THEIR COTTON PRODUCTION TO MEET WAR-TIME DEMAND?

Although domestic mill consumption uses cotton throughout the entire range of staple length (Table I), the largest percentages fall in three staple classifications: 15/16 and 31/32, 1 and 1-1/32, and 1-1/16 and 1-1/32 inches. Cotton of these staple lengths has been produced very successfully in Oklahoma. Producers, as well as others vitally interested in the progress of Oklahoma's cotton industry, have tried to encourage the production of even more cotton which would fall into these three staple classification groups. How near their efforts have succeeded can be measured by estimates of the United States Department of Agriculture. For the period 1928-1932, 41.5 percent of the total crop was classified as 15/16 and longer. In 1940, 77.8 percent was 15/16 and longer; and in 1941, 59.7 percent of the total crop was of that length.³

This is not entirely in line with consumption in the United States, as 90 percent of the cotton consumed has been 15/16 inch and longer. However, weather conditions are not always favorable to production of staples longer than 1-1/16 inches in

³ *Current Farm Economics*, Oklahoma Agricultural Experiment Station, Series 49, Vol. 14, No. 3, June 1941, p. 73.

TABLE I.—Consumption, Production, and Carryover of Cotton by Staple Length in the United States, 1939 and 1940.

Growth and staple length (inches)	1939-40			1940-41			1941-42*	
	Production (1,000 bales)	Consump- tion (1,000 bales)	Ratio of consump- tion to production	Carryover (1,000 bales) Aug. 1 1940	Production (1,000 bales)	Consump- tion (1,000 bales)	Ratio of consump- tion to production	Carryover (1,000 bales) Aug. 1 1941
Under 7/8	627.4	81.3	1:7.7	781.2	333.7	121.6	1:2.7	704.9
7/8 and 29/32	2,397.9	659.2	1:3.6	2,826.4	1,591.3	947.6	1:1.7	2,854.9
15/16 and 31/32	2,779.8	1,956.4	1:1.4	2,583.0	2,999.1	2,433.6	1:1.7	3,254.1
1 and 1-1/32	3,351.1	2,811.6	1:1.2	2,151.7	4,184.0	3,443.0	1:1.2	2,779.2
1-1/16 and 1-3/32	1,762.0	1,291.5	1:1.4	1,442.3	2,506.2	1,650.8	1:1.5	1,687.6
1-1/8 and 1-5/32	425.7	641.4	1:5.1	577.4	534.4	244.1	1:2.2	597.6
1-3/16 and 1-7/32	75.5	132.0	1:7.1	53.6	67.1	137.6	1:5	83.7
1-1/4 and longer	32.9	57.6	1:7.1	37.6	44.9	67.0	1:7	48.5
Total	11,452.3	7,631.0		10,453.2	12,260.7	9,545.3		12,010.5
								9,870.3

SOURCE: Cotton Quality Statistics United States 1939-40, 1940-41, Agricultural Marketing Administration, United States Department of Agriculture.

* Data are not available on the quality of cotton consumed in 1941.

Oklahoma, and some authorities believe the maximum staple length should not be longer than one inch, especially in western Oklahoma. Longer staple cotton cannot be harvested by the methods used for a large percentage of the cotton in this State.

If Oklahoma's cotton production is to be a part of our domestic consumption, it must meet the standards of quality needed by the mills not only for domestic consumption but also to meet the requirements of the armed forces. Production of quality cotton can be one of the most effective ways cotton producers can contribute indirectly to the war effort, for quality cotton can be manufactured cheaper and more quickly than the low quality cotton. To gear the production of cotton in Oklahoma to domestic consumption and all-out war effort, production must be directed towards producing quality cotton. It is recognized that an adjustment must be made in the market in the quality price relationship if production is to be in line with consumption.

WHAT EFFECT WILL THE WAR HAVE ON THE PRICE OF COTTON TO FARMERS?

In normal times, farmers produce cotton primarily because they can secure a greater return in the disposition of their resources: land, labor, and capital. Today, it is of equal or even greater significance that cotton is essential in the War economy. At this time, therefore, it is well to examine the cotton situation from the standpoint of how a greater return might be secured and how it can best be fitted into the war program.

During the last few years, producers and the cotton trade have become accustomed to very narrow differentials between high grade and low grade cotton. Low Middling, for example, has been selling around 125 points off, or \$6.25 per bale less than Middling. At the present time it is selling for 425 points off, or \$21.25 per bale less than Middling. Strict Good Ordinary is now selling for 600 points off, or \$30.00 per bale less than Middling. Cotton classified as 13/16 inch staple has in the past sold around 100 points off or \$5.00 per bale less than 15/16 inch; it is now selling at 215 points off or \$10.75 per bale less than 15/16 inch. These changes in price relationships have resulted from an increase in demand for the better grades and staples. This situation has become acute in view of the present need of quality cotton to enable the textile industry to expand production. For reasons to be pointed out, it is likely

that these differentials will continue to increase during the coming year, and it is altogether probable that bales of cotton ginned on the same gin and on the same day this fall can vary as much as \$50.00 in value.

It has always been true that differences on low grades widen when prices are high. The dirt, trash, excess moisture, and other foreign matter in a low-grade bale of cotton are waste. When a spinner buys a low-grade bale in Oklahoma, he pays for this waste and in addition must pay freight on it to the mill. When it reaches the mill, the mill must hire high-priced labor and maintain expensive machinery to take this waste out. The higher the price of cotton, the greater the absolute cost of this waste that is discarded. For example, a low grade may be one-third waste. If cotton is cheap and the bale costs \$30.00, the spinner in throwing away one-third of it throws away \$10.00. But if cotton is high and the bale costs \$100.00, the spinner, in throwing away one-third of it, throws away \$33.33. Consequently, in buying low grades on a high market the differential must be increased or widened. Other things such as demand and supply, and character of the cotton, enter into the basis calculation, but the above is the basic reason for the establishment of differences.

In addition to this, special conditions have been brought on by the war. The government is taking a large percentage, probably 75 percent, of the total output of the mills, and a greater percentage will likely be taken in the future. At the same time there is a shortage of silk, rayon and wool for civilian uses, and cotton is replacing these materials. Consequently, the mills are now spinning one million bales per month, whereas in past years one-half that amount was considered high. The mills would spin even more if it were physically possible for them to do so. This affects the quality of cotton used for several reasons. First, when a mill increases its spinning rate the tendency is always to use quality cotton. High quality cotton means less delay from yarn breakage. A loom is a very sensitive machine, and when a thread breaks it automatically stops and will not start again until the ends are tied together. Foreign matter naturally causes breakage. Foreign matter and the tying together of the broken ends of the thread may cause defects that would cause inspectors to reject the material because of the flaws, and so high speed spinning always requires the use of high grade cotton. Second, a high volume of business usually means high profits; and, when any firm is making money, there is less tendency to economize by

the use of inferior quality and a greater tendency to have the industry operate at capacity. Third, mills are now forced to use a great amount of new and inexperienced labor, and high grade cotton increases the efficiency of this type of labor.

Equally important is the fact that the speed of operation of the entire mill is determined by the speed of its slowest part. In cotton mills, the "bottleneck" or slowest department is the carding room. In that room all trash and "neps" are taken out and the fibers laid parallel. Few mills were built with a view in mind of the carding room working as fast as the rest of the mill. Three shifts in the carding room usually put out about as much cotton as the rest of the mill can consume in two shifts. Under present high speed operating conditions, with all departments of the mills operating three shifts, carding must be simplified and speeded up, but cards operating at high speeds do not clean as well as cards at lower speeds. A bale of Middling cotton put through high speed cards turns out about the same quality of material that would come from a Strict Low Middling put through low speed cards. It naturally follows that with higher speed cards the mills must have a higher grade cotton.

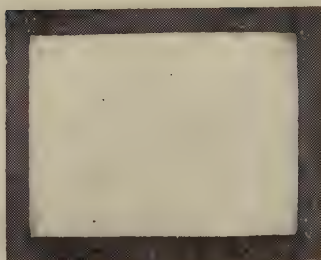
WHAT GRADES AND STAPLE LENGTHS WILL BE MOST IN DEMAND DURING THE WAR EMERGENCY?

The large percentage of military business influences the quality of cotton used. Most civilians are familiar with the high and exacting specifications required by the War and Navy departments. At times they may seem foolish and impractical. But it must be recognized that the shirt of a soldier may be the last one he will get for a long time once he gets on the field of battle; consequently, the durability of his shirt is much more important to him than is the durability of a civilian's shirt to the civilian. The government even places high specifications on duck and Osnaburgs, the kind of material out of which sacks are made. In the past these materials were made from cotton ranging from Low Middling to Good Ordinary values. At present, however, they are being made from Middling and Strict Low. That is caused by all the factors mentioned above: high specifications, low carding capacity, and unskilled labor. The scarcity of silk and rayon can be compensated only by the manufacture of finer goods interchangeable with those materials, and these goods can be manufactured only from high quality cottons.

GRADE

GINNED LINT

■ STRICT
MIDDLING

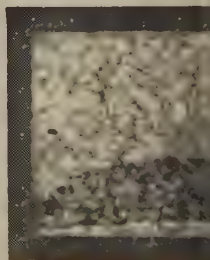
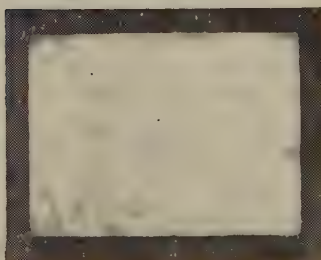


HEAVY



473 %

■ MIDDLING —



601 %

■ GOOD
ORDINARY



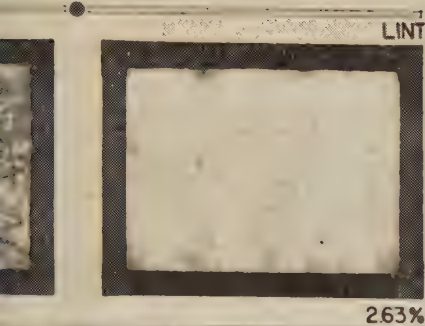
993 %

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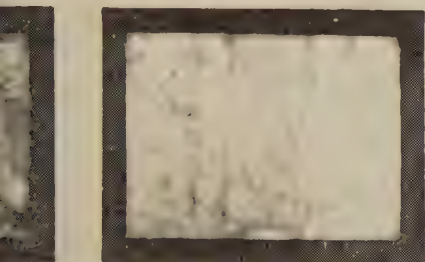
Spinners pay more for good grade cotton because it turns out more and better yarn and less waste material, and also because it spins faster and makes better quality materials which bring

WASTE



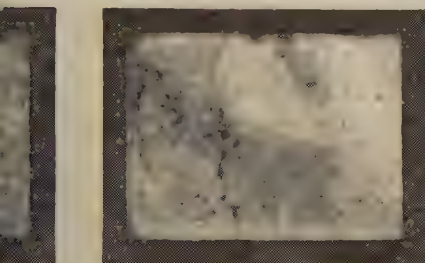
263%

AL LOSS 7.36 %



287 %

AL LOSS 8.88 %

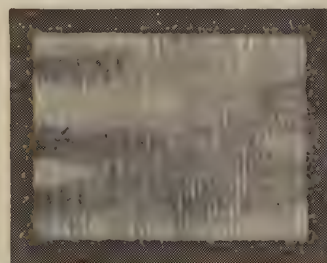
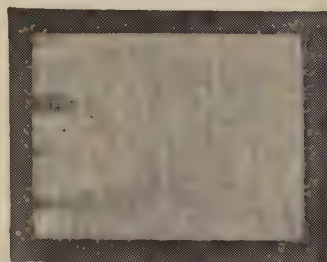
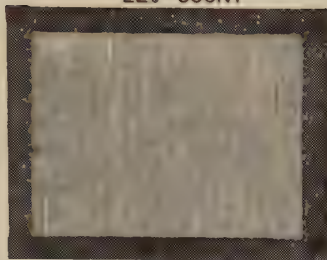


5.13%

AL LOSS 15.06 %

YARN

22s COUNT



are used through the courtesy of Agricultural Marketing Administration, U. S. D. A

TON MANUFACTURE

higher prices. As shown above, the waste in Good Ordinary is twice that in Strict Middling. Only good grades of cotton can be used in making cotton goods for use by the Army and Navy.

Still another factor influencing the market for low grade cotton is the amount of fiber waste available at mills. A certain percentage of all cotton going into the picker and cards at the mill drops out as fiber waste. This waste is interchangeable with low grade cotton. Before the war, much of it was exported, large amounts of it being bought by Germany. It cannot be exported now, hence it must find a market in this country in competition with low grades. Since the total volume of cotton used by the mills has doubled, the supply of this waste fiber has also doubled; and the mills, in instances where they can use low grades, are using this waste fiber from their high grade cotton instead of going into the market for the purchase of low grades.

The loss of an export market deprived the United States of a dumping ground for low grade cotton. In the past, England was a fair buyer of low grades; and Japan and China were big buyers when United States prices were comparable to Indian cotton. They were always anxious to purchase low grades to mix with Indian cotton. That market is, of course, non-existent.

Most of the above applies to grades, but staple is similarly affected. When mill speed is increased and inexperienced labor employed, the average length of staple used is always increased because of the necessity for maintaining a standard yarn breakage strength. Longer staple helps maintain standard breakage strength because of the spinning characteristics of the longer cotton fiber. A cotton fiber, while it is growing, is a long, watery, hollow tube. During growth, layer upon layer of cellulose is deposited upon the walls in this tube. When the cotton boll matures and moisture leaves, the tube collapses and twists. It then takes the shape of a flat, twisted fire hose. The twists in the fiber are called convolutions. The spinning process consists of laying the fibers parallel and then stretching and twisting them. As this is done, the fibers catch and lock together, much as two corkscrews can be twisted and locked together. This characteristic is the thing that gives cotton its superior spinning value and makes it unique among the fibers of the world. Naturally, long staple cotton has more convolutions and the fibers have a greater tendency to catch and hold each other than is the case with shorter staple cotton. Thus, high speed necessitates the use of strong fiber and longer staple cotton.

In addition to better grades, government specifications also call for better staples. War creates many demands for

extra strong cloth, among them being the more durable cloths already mentioned, and in addition parachute cloth, balloon cloth, cartridge belts for machine guns, and gas mask cloth.

HOW CAN OKLAHOMA FARMERS ADJUST PRODUCTION OF
COTTON DURING THE WAR IN ORDER TO
RECEIVE A HIGHER PRICE?

In Oklahoma, much of the cotton is damaged by frost before it is fully mature. This makes an inferior, soft-character, short staple cotton. Some varieties, of course, are soft-character even when they are mature. A drouth also tends to make the character in any variety softer. The process of manufacturing this cotton tends to fluff, whip, and tear it until it becomes the kind of fiber that floats off into the air and makes the room look as though it had been in a snowstorm. Incidentally, it also chokes and clogs the lungs of operators. Mills cope with this situation by working such cotton slowly, but that remedy is not feasible under the present economy. Consequently, the only use for "bollies" now is for stuffing in the manufacture of furniture and mattresses. Incidentally, low grades cannot be used in government mattresses for government specifications allow nothing lower than a Low Middling Spot. In the past, many mattresses have been made of a mixture of Low Middling cotton and first cut linters. Recently, the government has issued an order prohibiting the manufacture of first cut linters by the oil mills for commercial use and requiring that all linters be used by the chemical industry in the manufacture of smokeless powder. This may to a slight extent help the low grade situation.

In normal times, the finest cloth was made from combed yarn rather than carded yarn. This process separates the longer and shorter staples, the longer fibers going into an even fiber mixture for fine yarns and the shorter fibers dropping out to become an inferior mixture for coarser yarns. This process also removes "neps" from the cotton with a perfection which cannot be equalled by the carding system. Government orders for fine goods, together with the tendency of higher payrolls and higher farm income to make the public exacting in their requirements, creates more demand for these fine goods than mills with combing machines can fill. Mills using the carding system can supply the balance of this material only by using longer, stronger, even-fibered cotton containing no "neps."

In the past, England (The United Kingdom) took a great deal of 7/8 inch and 13/16 inch cotton. Japan and China also took large quantities of it. To market short staple in the markets of the world, the price of this short staple cotton had to be comparable to the price of Indian cotton. American mills for years have gradually abandoned staple less than 29/32 inch and now use a relatively small amount. This was due to attempts to increase the efficiency of labor by the use of high speed machinery and a large number of looms and spindles per operator. This policy, which was necessary to adjust the textile industry to the comparatively higher labor scale, left the spinning of the labor-consuming short staple cotton to those countries possessing an abundant supply of relatively cheap labor and whose customers were less exacting in the quality standards of cloth.

Although long staple cotton is needed to meet war requirements and is essential if the textile industry is to meet the present and future demands, it cannot be used if it is of low grade. The government would much prefer a medium length cotton in a high grade to a long staple cotton in a low grade. It also prefers a medium length in a medium grade to an extra short cotton in an extra high grade. This preference has resulted in establishing different values in the market from those which existed prior to the war emergency. For example: A Middling 15/16 inch will sell for 120 points or \$6.00 per bale more than a Strict Low Middling 1-1/32 inches. Middling 15/16 inch will sell for 430 points or \$21.50 per bale more than a Low Middling 1-1/32 inches.⁴ It naturally follows that it will be more profitable to the farmer to produce that cotton which will meet demand or requirements of our over-taxed textile industry. It is common knowledge that any gin can make a higher grade out of a short staple. Farmers, seeing this, have tended to go to the short staples to improve grades, especially in western Oklahoma; but that can be carried too far. At present, a Strict Middling 7/8 inch sells for 65 points off or \$3.25 per bale less than Middling 15/16 inch and a Strict Middling 13/16 inch sells for 180 points off or \$9.00 per bale less than Middling 15/16 inch. Therefore it appears that Oklahoma producers should direct efforts towards the production of the medium staples 15/16 to 1 inch, and Middling in grade.

Although the government is asking for a production of long staple cotton, but only in better grades, a big majority of it must come from territories more ideally located for the pro-

⁴ Cotton Quotations, Altus, Oklahoma, May 1, 1942, A. M. A., U. S. D. A.

duction of staple cotton than Oklahoma. Oklahoma is on the northern edge of the Cotton Belt where the growing season is short and where a large percentage of the cotton will always be damaged by frost before it is mature. The crop is harvested under unfavorable weather conditions and most of it is snapped. No gin can make high grade out of long staple snaps, especially if they are green or slightly damp. Consequently, a farmer who plants long staple may be sadly disappointed, because rather than receiving a premium on staple he will receive a proportionately greater discount on the low grade. Only that farmer who can and will pick it and bring it to the gin in such a condition that it can be made a premium bale should plant a long staple variety of cotton. That is, the grades must be equal to Middling White or better.

Just as there is no place for long staple low grades, there is no place for short staple high grades. There is, however, a definite place for the middle staple and middle grades, and the Oklahoma farmer can best serve himself and his country by adopting the middle ground. Oklahoma must, because of location, adopt a cotton that is short enough to make a decent grade from snaps and long enough to be of value. Oklahoma should concentrate its efforts on producing hard-bodied, even-fibered cotton that will make 15/16 inch to 1 inch staple, and to gathering this cotton as clean as possible.

Oklahoma farmers can pursue an economically sound quality production program. This can be accomplished by planting varieties adapted to Oklahoma, and by proper planting, cultivating, harvesting, ginning, and marketing of the cotton*

Varieties.—A secondary problem from the standpoint of importance is the planting of the varieties better adapted to Ok'ahoma; varieties that will produce a cotton which is early maturing, with a high lint percentage, that will staple 15/16 to one inch in length, and can be easily cleaned if snapping of most of the crop becomes necessary.⁵ These varieties must also produce a cotton possessing desirable spinning characteristics. Cottons of the same staple and grade classification do not have the same spinning value because of inherent characteristics. In some localities these undesirable characteris-

* For information on methods of producing cotton, see Oklahoma Extension Circular 375, "Cotton Production Practices in Oklahoma." For information on control of cotton insect pests and diseases see Oklahoma Agricultural Experiment Station Circular C-96, "Protecting Cotton From Insects and Plant Diseases."

⁵ See "1939 Report—Cotton Variety Tests in Oklahoma," Oklahoma Agricultural Experiment Station Circular No. 87.

tics may not appear, but when planted in an area very different from their original habitat these characteristics may appear or become dominant.

The principal problem today is to do away with the planting of mixed or mongrel seed. The common term probably more universally used is seed which has "run out." The most common characteristic of cotton produced from this seed is a low percentage of germination, which results in poor stands, slow growth and reduced yields. This shows up on the farm. At the gin, the lint turn-out decreases—cotton that formerly turned out from 35 to 40 percent lint will do well to third itself. The fibers are not uniform, which makes for a high percentage of waste when the cotton is spun at the mill. Consequently, the cotton is discounted in the future and this is reflected back to the farmers in the form of lower prices.

Planting and Cultivating.—Secondly, planting and cultivating are very significant in the production of quality cotton, especially in Oklahoma. Cotton planted too late will not mature and a large percentage of cotton must be harvested as bolls. This type or grade of cotton is suited only for the manufacturing of a cheap grade of mattress, consequently cotton used for such purposes has little value. To avoid late-maturing cotton the crop should be planted as early as possible. In some seasons early plantings are lost because of heavy rains; and in a year similar to 1942, when there is a scarcity of seed, great care must be exercised in selecting the period to plant and the method of planting to conserve planting seed.

Late-planted cotton cannot be harvested until November and December. The effects of late harvesting on grades are quite evident (Table II). Up to the end of September 30, 1941, 70.4 percent^a of the crop harvested was Middling White or better in grade, which is very desirable cotton for manufacturing most any type of goods consumed in commercial channels and will meet Army and Navy requirements. On December 12, only 15.3 percent of the cotton was Middling White or better. As late as October 1, only 3.0 percent of the cotton was Strict Low Middling White or below; but by December 12 Strict Low Middling White and below had increased to 66.7 percent of the total crop. In this particular season, prolonged rainy periods delayed harvesting and reduced the grades. Therefore, it is important that the crop should be harvested as soon as possible, which is facilitated by early planting.

^a Note that cotton classified as Strict Middling Spotted or better is included in the total of Middling White and better.

TABLE II.—Estimated Grade of Cotton Ginned by Specific Dates; Oklahoma, 1941.

Grade	September 30 (Percent)	October 31 (Percent)	December 12 (Percent)
White			
Good Middling			
Strict Midling	9.1	3.1	1.5
Middling	45.2	20.1	9.9
Strict Low Middling	22.0	28.8	19.1
Low Middling	4.6	19.7	28.5
Strict Good Ordinary	.4	11.8	16.4
Good Ordinary	*	1.5	2.7
Spotted			
Good Middling	1.0	.3	.2
Strict Middling	15.1	7.2	3.7
Middling	2.3	4.8	6.3
Strict Low Middling	.2	1.7	7.9
Low Middling	---	---	2.7
Tinged ¹	---	---	.5
Yellow Stained ¹	---	---	.2
Gray	---	---	---
Below Grade ³	---	.2	.5
Total Ginnings, Bales	140,408	313,186	606,077
Index* of Grade, 1941	97.9	91.1	87.0
Index* of Grade, 1940	97.2	97.2	94.3

SOURCE: Estimate Grade and Staple Length of Cotton Ginned in Oklahoma. Agricultural Marketing Administration. U. S. D. D., 1941-42.

* Grade Index: Middling=100; Strict Low Middling=94.

¹ Includes all grades.

² Less than 0.05 percent.

³ Includes samples lower in grade than the lowest grades of the official standard.

Harvesting.—Third, quality as determined by grade only is affected directly by the method of harvesting and the condition of the cotton when it is processed or ginned. The old hand-picking method of harvesting usually results in better grade, although great strides have been made in the improvement of machinery to clean snapped or pulled cotton. With a shortage of labor it will not be possible, even though desired, to harvest by picking a large percentage of the cotton produced in Oklahoma in 1942.

However, improvements can be made in harvesting by snapping or pulling. Care should be taken to see that the cotton is not pulled green, damp, or wet. Cotton should not be left open on the stalks too long as it will eventually lose its luster and the character of the staple will deteriorate. Pulling green and wet cotton was the primary cause for the large percentage of low quality cotton in 1941. Cotton pulled or snapped in most instances is damaged materially by the manner in

which it is transported to the gin. When the bolls are pulled most of the trash and dirt is only on the outer surface of the lint in the boll, and the foreign matter and dirt could be almost wholly removed if care were exercised to tramp the cotton very lightly in the vehicle for transporting to the gin. The capacity of the "bed" should be large enough to haul the cotton as loosely as possible. Packing and tramping a bale of cotton into a little two-wheeled trailer, as is a common practice, grinds the loose dirt and trash into the fiber so thoroughly that it cannot be removed at the gin. The snaps should be left loose and fluffy so that the first machine they contact at the gin can take out the loose dirt and trash before it becomes ground into the fiber. A farmer can materially affect his profit from cotton by the way he handles the cotton.

Ginning.—Fourth, the ginning or the first processing can do considerable damage to the grade or fiber. A smooth ginned bale of cotton produces the highest grade possible. Smooth ginning can only result from an efficiently operated gin, ginning cotton properly harvested and brought to the gin in good condition. Producers have always demanded that gins attempt to gin each and every bale brought to the gin regardless of the condition, whether green or wet. This always results in a low grade, and in a few cases it results in cotton described as "gin cut." First of all, producers should not expect to have a ginner try to gin cotton in such a condition; but, unfortunately, competition and the need for retaining the good will of his customers has forced the ginner to gin the cotton. This not only damaged the cotton, but the damage to the gin machinery in many instances was greater than the value of the bale of cotton and in too many instances greater than the entire revenue that might be secured from ginning the entire crop for the producer. Ginners cannot afford to subject their gin machinery to such treatment in 1942. Any broken part, however insignificant, cannot be replaced very quickly, and a broken part may result in the gin being forced to close down. This could deprive the community of gin facilities, which would be a great economic loss, as means for transportation will be limited.

Marketing.—Fifth, markets or the lack of markets, and methods of marketing, can be the factors that will result in the kind of seed that will be planted, the thought given to planting and cultivation, the method of harvesting, and the attention given to securing the best ginning possible. Unfortunately, markets have not always been what they should have

been in Oklahoma. An excess number of gins in relation to volume of cotton produced has resulted in competitive buying and processing of cotton by the gins. The gin paying the higher price and making the best turn-out was more heavily patronized. This did not encourage production of quality cotton, as hog-round prices were generally paid. If any price differentiations were made, they generally were not enough to compensate the producers of quality cotton for the additional time and care given to their product. However, with higher prices, this cannot be the practice in 1942. In many cases, there will be enormous differences in consecutive bales ginned on any gin. If the producer is aware of the quality of his cotton, and this information can be obtained free under the Smith-Doxey Act, he can demand and get a premium for quality cotton. The low quality producer cannot expect to get a hog-round price for his cotton, regardless of the volume he has to be ginned, for no ginner can stay in business long when he is forced to buy the quality cotton at its true value and take a loss of even \$10 a bale on the low quality cotton.

LOAN PRICE VERSUS MARKET PRICE

The differences on low grades in the government loan program in 1941 and those announced for the 1942 loan program have not been as wide as the differences at which the cotton sells in the market. At first thought it might appear that, considering this fact, the above statements about the effect of quality on price do not apply. It must be remembered, however, that the loan value is a fictitious value in that it is not a market value. The true value is the price at which a commodity will sell. Government loan differences are always revised in the market, as they cannot stay indefinitely out of line with actual values. But, in considering present differences, we find the following: Last year Low Middling 15/16 inch brought in the loan 200 points off or \$10.00 per bale less than Middling 15/16 inch. At the present time the cotton that went into last year's loan is being offered for sale. The producer who has a bale of Middling 15/16 inch in the loan today can get 415 points or \$20.75 out of his equity, whereas the producer who put in a Low Middling 15/16 inch can get only 120 points or \$6.00, which is \$14.75 less than the Middling price. The man who put the Middling cotton into the loan got \$10.00 more to start with and on selling it gets \$14.75 in favor of the higher grade. It is highly probable that loan prices may establish a value out

of line with the market for low grade cotton, but the ultimate exchange value or price must result from a subjective valuation in the market.

SUMMARY

In the United States at present there is a so-called surplus of 10 million bales of cotton, but most of this cotton is short staple or low grades or both and under present conditions cannot be used in America. Therefore, the United States has a surplus of cotton and at the same time a shortage of *usable* cotton. From the standpoint of profit and also from the standpoint of patriotism, the Oklahoma farmer must not add to this stock of unusable cotton, but must produce the kind of cotton that can go into domestic consumption, namely, the middle staple lengths with grades as high as possible.

It has been said that America is great because of her natural resources, but that is only partly true. Other countries with natural resources almost as great remain in a more or less primitive stage of development. America is great because of her human resources, and because of the things that the men of America have been able to do with her natural resources. This cotton situation calls on the ingenuity of human resources. The proper use of them at this time means not only hundreds of thousands of dollars in the pockets of the farmers of Oklahoma, but also a valuable and necessary contribution to the defense of our country, the welfare of our armed forces, and the welfare of our civilian population.